



exoIQ

More power, less load.

Work more easily with the
S700 shoulder exoskeleton.



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Fact sheet

Company headquarters

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Managing directors

Dr. Ghesal Fahimi-Steingraeber, Dr. Bernward Otten, Prof. Dr. Robert Weidner

Foundation

2017, Hamburg

Business areas

Automotive
Industry
Logistics
Production

Employees

exoIQ GmbH currently has 32 employees in Germany.

Short profile

exoIQ GmbH was founded in Hamburg in 2017 and develops intelligently designed support systems. Its roots lie in a university research project at Helmut Schmidt University, which has been researching exoskeletons since 2014.

The first exoIQ product, the S700 active shoulder exoskeleton, has been on the market since autumn 2023. The S700 is the world's first active exoskeleton for industrial use that relieves strain on the arm, neck and shoulder muscles. It can be adjusted to different body sizes and shapes without tools and can be set to different activities with the help of different support modes, so-called presets. With up to 15 kg of force, users are flexibly supported during assembly and handling tasks at chest/shoulder height or overhead.

The S700 is developed and manufactured in Germany. The production site is in Illertissen in Bavaria.

exoIQ's mission is to support, strengthen and relieve people in the industrial workplace and protect them from physical harm. And thus to positively change the future of work.

exoIQ is a company of the TTS Tooltechnic Systems Group and can therefore draw on expertise from other sister companies such as Festool, Cleantec and Tanos.

About the active shoulder exoskeleton S700

The most important facts

„Our exoskeleton is like a rucksack with arms that supports you when you are working at chest height or especially overhead. It makes it easier to carry out difficult tasks.“(founder Bernward Otten)

- Exoskeletons are **body-worn support systems**.
- The S700 active shoulder exoskeleton from exoIQ is designed **for use in the industrial sector**.
- The force support is up to **7,5kg per arm**.
- Activities **at chest/shoulder height or overhead** become noticeably and demonstrably easier.
- The exoskeleton is **easy to use** and the size and power support can be **individually adjusted**.
- In addition, the exoIQ app can be used to **optimise the type of support for certain activities** with the help of presets.
- The use of the exoIQ app also simplifies **ergonomic workplace analyses** using the S700.
- Consistent use of the S700 **reduces physical strain** and can increase the attractiveness of the workplace and send a positive signal to skilled workers.

The S700 shoulder exoskeleton

Exoskeletons are body-worn support systems. They are flexible aids that provide relief for employees. More specifically: The use of an exoskeleton reduces the strain on the human body.

This applies in particular to active (see "How it works" below for an explanation) support systems such as the S700 shoulder exoskeleton from exoIQ. The S700 relieves the arm, neck and shoulder muscles, making it the first active shoulder exoskeleton of its kind in the world for industrial use. Up to 7,5 kg of force support per arm makes activities at chest/shoulder height or overhead noticeably and demonstrably easier. The strength of the supporting effect can be customised to suit the person and the activity.

The S700 is available for €3,500 and is produced in southern Germany. exoIQ can also draw on the resources of its sister company Festool.

How it works

The S700 is a so-called active exoskeleton. In active systems, power is generated by a motor and without user intervention.

The S700 shoulder exoskeleton is driven electro-pneumatically by a battery-operated compressor. The additional power is transferred to the arms by moving the drive elements on the arm shells using compressed air. An integrated sensor system detects movements accurately. The principle works in a similar way to a hiking rucksack, according to the load redistribution principle. This means that the shoulders are actively supported while loads are redistributed to the hips.



In order to be able to customise the support provided by the S700, the shoulder exoskeleton has a control element that can be used to adjust the level of power support (up to 7,5 kg per arm). The control element also has a pause button for interrupting the support so that secondary activities, such as telephoning or drinking a glass of water, can be carried out at any time without interruption.

If the S700 is linked to the exoIQ app, different presets can be called up and saved. These enable even more targeted support, for example during assembly tasks. The S700 is supplied with four standard presets, with additional modes available in the app's preset library.

For long-lasting operation, the S700 is supplied with two Festool brand batteries (4.0 Ah/"ampere-hours" each) and a quick charger.

Handling

The S700 exoskeleton can be put on and taken off quickly and easily without external assistance in around 30 seconds (once it has been adjusted to the correct size). Thanks to tool-free size adjustment, it can be flexibly adapted to different users. It is fastened like a hiking rucksack with a wide hip belt and a narrow chest strap. The arm shells can be reached independently and are easy to put on thanks to magnetic arm fasteners. Once fitted, wearers only have to remember three numbers: the markings for the back length, shoulder width and arm length. A detailed sizing chart is included for optimum fitting.

The S700 has an interchangeable textile system that enables the company to provide all employees with their own set of textiles, thus ensuring hygienic use. The quick-change system makes it easy to switch between several employees. The textile set is supplied with a laundry bag and can be washed in a standard washing machine.

Areas of use

The S700 is explicitly designed for use in the industrial sector. It provides support for all activities that require workers to move their upper arms away from their upper body and upwards, i.e. to adopt an unergonomic posture.

In **metalworking**, for example, people are constantly exposed to high loads during movements such as lifting, holding and carrying.

Activities such as **welding** or **assembly** often require a combination of static muscle tension and trying to achieve the greatest possible precision. The support provided by the S700 reduces muscular tension and can have a positive effect on the quality of work.

In addition, the natural freedom of movement is unrestricted when wearing the S700. Work involving dynamic movements, such as in **picking** or **small parts production**, which requires flexible gripping in different directions and heights, but also requires holding, is also made easier.

The consistent use of the S700 reduces physical strain and can increase the attractiveness of the workplace as well as sending a positive signal to skilled workers.

FAQs

Does the S700 shoulder exoskeleton give you superpowers?

No. The S700 is intended to move the same loads and perform the same work activities with the same number of employees as before. The support provided by the exoskeleton is intended to reduce overload. The aim is by no means to give employees superpowers.

Does the use of an exoskeleton make you weak in the long term?

No, on the contrary. As the exoskeleton only removes the permanent overload, the muscles remain actively trained. The supporting power of the exoskeleton can be adjusted in such a way that it maintains positive training effects for the muscles while minimizing negative effects on the joint apparatus.

Are there any side effects from the use of exoskeletons?

On the contrary: short-term effects have already been proven to be positive and this can also be expected for long-term studies. However, such studies are not yet available for this modern technology. In any case, the exoskeleton must be ergonomically adapted to the user in order to unfold its positive effects.

Who controls the exoskeleton?

The users themselves. The exoskeleton supports their movements. However, they have to carry out the movement themselves. The power of the exoskeleton is always less than the muscle strength of its users. This means that individual control is always maintained.

Where is the data from the exoIQ app stored?

The data from the ergonomics analysis, for example, remains locally on the device (e.g. tablet), private data remains private. The S700 can only provide data if the user actively agrees to Bluetooth pairing with the ap

About the exoIQ app

The most important facts

- The app enables an **ergonomics analysis** of the workplace. The amount of support is recorded directly during the activity with the exoskeleton, which simplifies the analysis when using an exoskeleton at the workplace.
- The app enables software updates of the device and the **individual change of support modes** (presets).
- The exoIQ app is **free of charge** and is used in combination with the S700.
- **Data protection** is guaranteed. The S700 does **not send data independently**. Users must always actively establish a Bluetooth connection between the exoskeleton and the app themselves. Collected data, e.g. from the ergonomics analysis, **remains locally** on the device used (e.g. a tablet).



Ergonomics analysis of the workplace

The exoIQ app enables companies to objectively measure and visualise the support provided by the S700. If the exoskeleton is connected to the app, it can visualise arm and upper body movements during the work process. This makes it possible to determine whether there are safe or critical joint positions and what support is provided by the S700 in which position. This also makes the added value of the S700 transparent for everyone involved.

The exoIQ app can be used to record work processes with the S700. This creates a comprehensive ergonomic analysis of the workplace using the S700, which can be output as a report.

Different support modes (presets)

Presets can be used to provide even more targeted support for certain types of activities. The S700 comes with four standard presets that can be set using the control panel on the shoulder strap. To ensure the greatest possible variability and adaptability, other support modes can be transferred to the exoskeleton using the exoIQ app. How do you know which preset is best suited to which application? There is a separate area in the app, the preset library, where the areas of application and activities are explained in detail.

Contact: exoIQ ergonomics analysis

Dr. Andreas Argubi-Wollesen will be happy to answer any further questions you may have about ergonomics analysis. The biomechanist and doctor of sports science is responsible for the areas of biomechanics and movement science at exoIQ.



Dr. Andreas Argubi- Wollesen

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biomechanist / doctor of sports science

Press release

Product innovation: The S700 active shoulder exoskeleton from exoIQ

[Hamburg, February 2024] **Now on the market: the world's first active shoulder exoskeleton for industrial use, made in Germany. The S700 from the Hamburg-based company exoIQ effectively relieves arm, neck and shoulder muscles with up to 7,5kg per arm. Physically demanding workplaces in industry can thus be made fit for the future.**

Exoskeletons are body-worn support systems that redirect the load from weaker to stronger parts of the body. With the new S700 active exoskeleton from exoIQ, the upper arms are supported electro-pneumatically. The additional power support can be adjusted from 1 to 7,5kg. This provides noticeable and demonstrable relief for the muscles in the shoulders, arms and neck during assembly and handling tasks in front of the chest and at overhead height. It can also be adjusted to different body sizes and shapes without the need for tools. Different pre-programmed support modes enable even more targeted adjustment to different work areas.

Active support systems

With the battery-operated S700, exoIQ is launching an innovation that is the first of its kind on the market. "The highlight of active support systems is that the power delivery is individually adjustable. The S700 grips the employee under the arms to prevent overexertion and fatigue. But the level of support can be customised by each user and for each activity. And the system can be switched to pause mode at any time so that it doesn't get in the way of secondary activities," said Bernward Otten, managing director of exoIQ from Hamburg.

Reduced strain means increased concentration and work quality

Exoskeletons are not intended to replace employees, but to reduce the strain on them. When using the S700 for overhead or chest-height activities, an immediate, positive effect is felt. Reduced fatigue and increased concentration have an equally positive effect on both employee satisfaction and quality of work. "Nothing is more flexible than the human being, which has continued to evolve over millions of years. The main driving force behind successful companies is keeping their employees' performance at a consistent level. And that's where we come in, offering an ergonomic aid that makes work easier, in the form of the S700," added exoIQ managing director Robert Weidner.

The S700 active shoulder exoskeleton has been available on the market since October 2023.

About exoIQ: exoIQ GmbH was founded in Hamburg in 2017 and develops intelligently designed support systems. Its roots lie in a university research project at Helmut Schmidt University, which has been researching exoskeletons since 2014. The mission of exoIQ is to support, strengthen and relieve people in the industrial workplace and protect them from physical harm. And thus to positively change the future of work.

Founder profiles

Robert Weidner was born in Hamburg in 1986 and studied mechanical engineering at Hamburg University of Technology. After graduating in 2010, we worked as a research assistant and, since 2014, as junior research group leader of the interdisciplinary smartASSIST junior research group (project of the Federal Ministry of Education and Research) and as group leader for robotics and automation at the manufacturing technology lab (Professor Wulfsberg) of the Helmut Schmidt University/University of the Federal Armed Forces Hamburg. Since 2025, he has been a professor at TU Bergakademie Freiberg, where he holds the chair for Automated and Autonomous Systems.

"With our intelligently designed exoskeletons, we want to improve workplace ergonomics and reduce physical strain."

[LinkedIn](#)



Bernward Otten was born in Frankfurt am Main in 1989 and studied medical engineering as well as mechanical engineering at the Technical University of Munich. In 2022, he received his doctorate from Helmut Schmidt University Hamburg, where he was a member of the interdisciplinary junior research group smartASSIST from 2015 to 2019, researching methods and concepts for human-technology interaction.



"In many ways, the evolutionary story of the human being, as a complex machine with over 600 muscles, makes it an exciting sparring partner."

[LinkedIn](#)

Interviews

Interview with the exoIQ founders Robert Weidner and Bernward Otten

1. When was exoIQ GmbH founded, and why?

Weidner: Since the end of 2014, we in the smartASSIST research project – an interdisciplinary junior research group supported by the Federal Ministry of Education and Research – have been researching support systems for scenarios at work and in every day life. Our motto was "Technical support systems that people really want". Early on, we received good feedback about our developments and won 2nd place in the Industrial Production handling award 2017 in the category of handling and assembly. This motivated us to take the next step from invention to innovation, i.e. to develop products ready for series production.

Otten: In order to launch the innovation on the market, we founded exoIQ GmbH in 2017. Since 2018, we have been developing high-quality exoskeletons in collaboration with TTS Tooltechnic Systems as a strategic partner. These are produced in Germany and sold through various sales channels.

2. Where did the idea of dealing with exoskeletons come from?

Weidner: We saw a gap between automated solutions and human work. Approaches like human-robot collaboration and lifting aids are a step in the right direction, but are often limited in terms of flexibility, e.g. they can only be used at fixed workstations. We also wanted to help people perform tasks without taking away certain activities. In terms of evolution, the human being has an extraordinarily well-developed sensorimotor system and cognitive capabilities that are fundamental for current and future value creation chains.

Otten: Human flexibility is of course not only important for the world of work, but is also an unbelievably exciting development object. In many respects, the human musculoskeletal system, with over 600 muscles and highly optimised load-bearing structures, is a challenging interaction partner, thanks to its long evolutionary history. But if you also consider constraints such as demographics, a skills shortage, etc., it was an obvious step to research physical support systems that do not replace employees but assist them.

3. Why is the human being such a central element in exoIQ product development?

Otten: We are constructing technology that is worn on the body and must work synchronously with the person wearing it. An exoskeleton can only be used successfully if it is harmonised with the person at a wide variety of levels and therefore, for example, is adapted to the human body through intelligent mechanics while also meeting requirements and requests.

Weidner: Exoskeletons should support human movements in the context of work activities. The human being should not adapt to the technology, but the technology should be designed such that it can be adapted to each individual and provides support when support is required. The essential thing is not only an understanding of human requirements and needs, but also to include this in the development process and to understand the work processes and context of use.

4. How did the collaboration with TTS Tooltechnic Systems come about, and what do the two partners contribute to the joint undertaking?

Weidner: Based on a newspaper article in a renowned German daily newspaper, we were approached by Festool, one of the TTS brands, and soon noticed that we have the same interests in principle. We were able to share Festool's motto "We make professional tradespeople successful and proud" and it became clear that we could contribute to this with our technologies for strain relief during physically challenging work and the design of future workplaces.

Otten: TTS Tooltechnic Systems and exoIQ contribute their expertise equally. On the one hand, the particular ability to develop and produce complex, high-quality mechatronic machines with market access, and on the other hand, the basics in connection with support systems. In addition to our development experience, we as founders can also fall back on a network of various industries and contribute our expertise to the evaluation of exoskeletons.

5. What are the next steps for the future? What is your vision for your company?

Weidner: Our aim is to develop and sell support technologies for various industries and workplaces. The exoIQ exoskeletons are intended to relieve the strain on various parts of the body during manual activities. Intelligently designed, mechatronic systems will enable this and will be supported by digital tools for evaluation and analysis.

Otten: Exoskeletons will soon be taken for granted as a part of the work system and will be an integral component of work clothing, just as safety helmets already are today. A few years ago, pedal assist bicycles were still a marginal issue, but in the meantime more bicycles are sold with pedal assist than without.

Picture and video material

You can view a selection of picture material and videos here.

All photos are available in web resolution in our press area on the [Homepage](#) (print quality on request from our press office).



Outlook

Trade fair dates:

exoIQ GmbH will be represented at the following trade fairs.

- **PREVENTICA in Bordeaux (FR)** from October 14-16, 2025
- **Schweisstec** in Stuttgart from October 21-24, 2025
- **A+A Trade Fair** in Düsseldorf from November 4-7, 2025

For interview questions and on-site appointments, please contact Juliette Bernard.

More information: In addition to the new S700 shoulder exoskeleton, visitors can also experience the exoIQ app live and test it out in person.

Presence on social media

exoIQ is present on the following social media channels:

LinkedIn, YouTube, Instagram und Facebook

<https://linktr.ee/exoig>

Press contact

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